

**FINAL NARRATIVE REPORT
IRFFI/UNDG IRAQ TRUST FUND (UNDG ITF)**

<p>Participating UN Organization(s)</p> <p>United Nations Development Programme</p>	<p>Sector(s)/Area(s)/Theme(s)</p> <p>Old Cluster: E3 Water and Sanitation</p> <p>New Sector: WatSan SOT</p>										
<p>Programme/Project Title</p> <p>Emergency Rehabilitation of Karama Water Treatment Plant – Line I</p>	<p>Programme/Project Number</p> <p>ATLAS Project Number: UNDG 66870 UNDP Iraq 46959</p> <p>ATLAS Award Number: UNDG 54870 UNDP Iraq 41253 Cluster No. E3-04</p>										
<p>Programme/Project Budget</p> <table border="0"> <tr> <td>UNDG ITF:</td> <td>USD 2,955,875</td> </tr> <tr> <td>Govt. Contribution:</td> <td>USD 0</td> </tr> <tr> <td>Agency Core:</td> <td></td> </tr> <tr> <td>Other:</td> <td></td> </tr> <tr> <td>TOTAL:</td> <td>USD 2,955,875</td> </tr> </table>	UNDG ITF:	USD 2,955,875	Govt. Contribution:	USD 0	Agency Core:		Other:		TOTAL:	USD 2,955,875	<p>Programme/Project Location</p> <p>Region (s): Central Iraq</p> <p>Governorate(s): Baghdad Governorate, Baghdad City</p> <p>District(s): Al Karkh District, including Khadimiya area, Al Oteifya area and adjacent areas</p>
UNDG ITF:	USD 2,955,875										
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<p>Final Programme/ Project Evaluation</p> <p>Evaluation Done <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Evaluation Report Attached <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Programme/Project Timeline/Duration</p> <p>Overall Duration <i>37 months: October 2005-December 2008</i></p> <p>Original Duration <i>15 months: October 2005-January 2007</i></p> <p>Programme/ Project Extensions <i>16 September 2007 until September 2008</i> <i>10 April 2008 until 21 November 2008</i></p>										

FINAL NARRATIVE REPORT

I. PURPOSE

- a. Provide a brief introduction to the programme/ project (one paragraph)

The full rehabilitation of Al Karama Water Treatment Plant Line I and the partial rehabilitation of Line II and Line III have improved the supplied water quantity by 40 per cent. The completion of this work brings the total plant output back to the pre 1990 capacity with an increased production of Line I by 10 Million Gallons per Day (MGD). Water quality has improved by 75 per cent and 300 per cent related to the turbidity (solid content of water) and the chlorine content in the treated water, respectively. The result of this rehabilitation project is that approximately 1,000,000 inhabitants residing on the Karkh side of Baghdad now have improved access, both quantitatively and qualitatively, to potable water supply services.

UNDP has implemented the first ever chlorination system that conforms to the mandatory health and safety requirements in Iraq. Given its commitment to fostering sustainable development, the water treatment plant operation and maintenance (O&M) staff, Baghdad Water Authority (BWA) and the Mayoralty of Baghdad (MoB) staff have received comprehensive training on O&M covering a diverse range of activities that would allow long-term trouble-free operation of the various systems.

- b. List programme/project outcomes and associated outputs as per the approved Project Document.

Key Immediate Objectives:

1. Increase production of Karama Water Treatment Plant in Baghdad by 10MGD.
2. Increase reliability and long term operation of Karama Water Treatment Plant.
3. Water Quality monitoring and testing laboratory of the plant capable of conducting daily, weekly and monthly tests according to international testing standard procedures.

Outputs:

1. Production increased by an additional 10 MGD of potable water.
2. The reliability and long-term operation of the entire Karama water treatment plant is improved by 40 per cent.
3. The staff of Mayoralty of Baghdad, Baghdad Water Authority and Karama Water Treatment Plant have the capacity to manage the potable water system.
4. A functioning water testing laboratory.
5. Staff trained in water testing techniques.

- c. List the UN Assistance Strategy Outcomes, MDGs, Iraq NDS Priorities, ICI benchmarks relevant to the programme/ project

UN Assistance Strategy for Iraq: UN Cluster 3 Water and Sanitation:

There is an articulated need to address the challenge of access to safe drinking water within the Strategy which will require a 50 per cent reduction of people without access to safe drinking water and sanitation to meet the MDG Goal 7.

UN Millennium Development Goals (MDG): MDG Goal 7 Target 3:

This project directly relates to Goal 7 Target 3 to reduce the percentage of people without access to safe drinking water and sanitation by 50 per cent by 2015.

Iraqi National Development Strategy (2005):

Pillar 3 1:

“To increase access to potable water by 10 per cent and access to improved sanitation by 5 per cent by the end of 2007.”

The International Compact with Iraq (ICI):

Section 4.4 on Human Development and Human Security; of specific reference in section 4.4.1 Delivering Basic Services: Working towards the Millennium Development Goals.

“The Government will work towards achieving its interim 2011 Millennium Development goals in an efficient and sustainable way. To this end it will work to...improve access to safe drinking water and sanitation by one third.”

- d. List primary implementing partners and stakeholders including key beneficiaries.
- Baghdad Water Authority (BWA)
 - Mayoralty of Baghdad (MoB)

II. ASSESSMENT OF PROGRAMME/ PROJECT RESULTS

- a. Report on the key outputs achieved and explain any variance in achieved versus planned results. Who have been the primary beneficiaries and how they were engaged in the programme/ project implementation?

IP Output 1.1: Production increased by additional 10 MGD of potable water- enough to reach the 1,000,000 or so residents on the Karkh side of Baghdad, specifically Kadhimiya area and a few quarters in Rasafa

- Procurement of materials and labour for rehabilitation and renovation of Karama Water Treatment Plant Line I by 10 MGD. This included complete rehabilitation of the entire line works including civil and electro-mechanical works on the raw water pumping station, alum dosing facility, chlorine dosing facility (pre and post chlorination), flocculation tanks,

- sedimentation tanks, intermediate storage tanks, complete sand filtration facility, treated water pumping station, electrical power supply system (i.e. power distribution network, switchgears, transformers, etc), and several overhead cranes .
- Activities were expanded to include the partial rehabilitation of Lines II and III of the treatment plant covering various aspects including upgrading the electrical power supply system (power distribution network, switchgears, transformers, site illumination, etc), construction of a chlorine building, rehabilitating several mechanical systems (sedimentation tanks, overhead cranes, pumps, etc).
 - Completion of the physical rehabilitation works and implementation activities including the full rehabilitation of Line I with materials procured and labour contracted.
 - Completion of the final testing and commissioning on 20 November 2008.
 - Issuance of the Certificate of Substantial Completion December 2008.

IP Output 2.1: The reliability and long-term operation of the whole of Karama Water Treatment Plant is improved by 40 per cent

- Procurement of sand filter media for operation for one year.
- Capacity strengthening of staff of the water treatment plant, Baghdad Water Authority and Mayoralty of Baghdad Operations and Management.
- Partial rehabilitation of Lines II and III of the treatment plant covering various aspects including upgrading the electrical power supply system (power distribution network, switchgears, transformers, site illumination, etc), construction of chlorine building, rehabilitating several mechanical systems (sedimentation tanks, overhead cranes, pumps, etc).

IP Output 2.2: The staff of Mayoralty of Baghdad, Baghdad Water Authority and Karama Water Treatment Plant has the capacity to manage the potable water system.

- One hundred twenty (120) man/woman days of Operations and Management training delivered for the Karama Water Treatment Plant, Baghdad Water Authority and Mayoralty of Baghdad Operations and Management staff.
- Another development partner provided a series of training courses which contributed to achieving the indicator target.
- A decision was made by the Steering Committee not to duplicate this training scope of work.

IP Output 3.1: A functioning water laboratory

- This output was addressed by another development partner with the indicator target met.
- A decision was made by the Steering Committee not to duplicate the scope of work.

IP Output 3.2: Staff trained in water testing techniques

- Capacity training for technicians from Al Karama Water Treatment Plant and the Water Department of Baghdad Water Authority :
 - Four (4) Technicians trained on Instrumentation,
 - Two (2) Technicians trained on Recording and Documentation,
 - Two (2) Technicians trained on Safe Handling of Chemicals and
 - Sixteen (16) Technicians trained on Laboratory Equipment Use and Statistical Analysis.

Direct Beneficiaries: Approximately 1,000,000 inhabitants residing on the Karkh side of Baghdad directly benefit through access to improved quantities and quality of potable water supply services.

Indirect Beneficiaries: Staff and technicians at the Mayoralty of Baghdad, Baghdad Water Authority and Karama Water Treatment Plant as well as the national contractors and local consultant.

Project implementation had indirectly resulted in i) generating commercial activity and employment opportunities for local consultant and national contractors through the entered services and works contracts and, ii) capacity building of the relevant Baghdad Water Authority and Mayoralty of Baghdad staff that will result in improving their employment terms, conditions and future opportunities.

- b. Report on how achieved outputs have contributed to the achievement of the outcomes and explain any variance in actual versus planned contributions to the outcomes. Highlight any institutional and/ or behavioural changes amongst beneficiaries at the outcome level.

IP Outcome 1: Increase production of Karama Water Treatment Plant in Baghdad by 10MGD.

Fully achieved with additional rehabilitation work implemented:

The project contributed to the rehabilitation, installation and the upgrading of the water sector facilities in the City of Baghdad through rehabilitation of Al-Karama Water Treatment Facility including the full rehabilitation of Line I and partial rehabilitation of Lines II and III.

Quantitatively, approximately 1 million persons inhabiting the peripheries of Baghdad City gained access to safe potable water through the increase in the overall production capacity of Al-Karama Water Treatment Facility by some 10 MGD (40 per cent) and the improvement in the quality of the water.

IP Outcome 2: Increase reliability and long term operation of Karama Water Treatment Plant.

Achieved beyond initial scope of intervention:

All project scope of work including construction, equipment and supplies were completed. In addition, the capacity building/training programme was conducted that included the plant operators and technical staff, enhancing operational sustainability and reliability.

IP Outcome 3: Water quality monitoring and testing laboratory of the plant capable of conducting daily, weekly and monthly tests according to international testing standard procedures.

This output was addressed by another development partner with the indicator target met: partially achieved.

The water quality and testing laboratory was rehabilitated by another development partner meeting the goals of the project. The Steering Committee decided that this activity would be duplication; therefore, this component was not implemented.

Water quality monitoring and conducting periodic tests according to international testing standards have been improved through delivering 120 man/woman-days of training on water testing techniques in addition to operation and maintenance for the Karama Water Treatment Plant staff.

c. Explain the overall contribution of the programme/ project/ to the ICI, NDS, MDGs and Iraq UN Assistance Strategy.

UN Assistance Strategy for Iraq

UN Cluster 3 Water and Sanitation

There is an articulated need to address the challenge of access to safe drinking water within the Strategy which will require a 50 per cent reduction to meet the MDG Goal 7. Within the Strategy there is a link made between water, the national infant mortality rate and improvement of nutrition. The Karama Project directly addresses safe drinking water and through the completion of the rehabilitation has provided approximately 1,000,000 Baghdad residents with safe potable water daily.

UN Millennium Development Goals (MDG):

The Karama Project directly relates to MDG Goal 7 Target 3: To reduce the percentage of people without access to safe drinking water and sanitation by 50 per cent by 2015 (MDG/ICSD). Additionally this project positively impacts on infant mortality rate and nutrition within the MDG. The project possibly promotes gender equality and empowers women, as it assists in reducing the workload of women in respect to responsibilities and tending to sick family members contributing to MDG Goal 3.

Iraqi National Development Strategy:

The Karama Project contributes to Pillar 3 1 that prioritizes improving access to clean water and sanitation. It was elaborated that according to the Iraq Living Conditions Survey (ILCS) only 54 per cent of households in Iraq have access to safe and stable water supply.

The International Compact with Iraq (ICI):

This project is directly linked to Section 4.4 on Human Development and Human Security. Of specific reference is 4.4.1 Delivering Basic Services: Working towards the Millennium Development Goals.

*“Goal: The Government will work towards achieving its interim 2011 Millennium Development Goals in an efficient and sustainable way. To this end it will work to:
...Improve access to safe drinking water and sanitation by one third.”*

- d. Explain the contribution of key partnerships including national, international, inter-UN agency, CSO or others towards achievement of programme/ project results.

UNDP’s counterparts were the Mayoralty of Baghdad and the Baghdad Water Authority. All project related arrangements including preparation of Pre-Qualification (P/Q) documents and Requests for Proposals (RfP) for consultants, appointment of the consultant and contractor, among others have been carried out in close collaboration with UNDP counterparts.

At project outset, a Steering Committee (SC) was established including representation of the Baghdad Water Authority and the Karama Water Treatment Plant Manager and representation from the Mayoralty of Baghdad. The Steering Committee was responsible for making critical decisions on all project implementation matters and reviewed all project technical studies, documents, invoices, quality test results, monitored work quality, and oversaw the substantial completion and final completion processes.

The counterparts during all project development phases from initial conceptualisation through final handing over were involved. The counterparts reviewed all technical materials (scopes of work, drawings, Bills of Quantities...etc.). In addition, counterparts had an active role during the construction activities by being part of the designated site decision making mechanism; payments were processed after the receipt of the certificate of payment issued by the Engineer, approving each invoice amount.

Payment of the final invoice was effected by UNDP after issuance of the Certificate of Substantial Completion upon the agreement of the counterparts via official written letters of acceptance.

In addition, UNDP will release the Contractor's performance bond upon issuance of the Certificate of Final Completion by the Baghdad Water Authority.

- e. Highlight the contribution of the programme/ project on cross-cutting issues:

The project is not designed to create employment opportunities under the labour intensive implementation modality. However, project implementation resulted in:

- Creating and sustaining numerous employment opportunities for the National Consultant.
- Creating and sustaining numerous employment opportunities for the National Contractor; 50 people of different skills have been directly employed by the contractor to implement the works.
- Indirectly created and sustained numerous employment opportunities for all project related contractors, suppliers, vendors...etc.
- Creating and sustaining employment opportunities for Mayoralty of Baghdad and Baghdad Water Authority; 6 Baghdad Water Authority permanent staff members of the Water Treatment Plant-Line I who were engaged by the project.
- Capacity building of the Baghdad Water Authority staff has resulted in enhancing the employment terms, conditions and future opportunities.

In addition, the project contributed to:

- Lifting part of the burden off the shoulders of women and young girls through reducing waterborne diseases and care-giving.
- The project also contributed to strengthening girls' education by freeing part of their time originally dedicated to managing sub-optimal water supplies.
- Health and Sanitation issues were addressed through having more in-house water.
- Environmental issues through converting wastewater systems to a water-borne system and, thus, eliminating on-site sanitation facilities' that customarily resulted in ponding of sewage on streets and contamination of groundwater.
- Capacity Building
- MDGs

- f. Provide an assessment of the programme/ project based on performance indicators as per approved project document using the template in Section IV

The project was to focus on Line I at the Karama Water Treatment Plant by increasing output by 10 MGD. In addition, the project resulted in improving the entire Water Treatment Plant (i.e. Lines I, II and III) reliability through elimination of the frequent outages due to electromechanical systems failures. This resulted in an improved access (i.e. quality and quantity) to approximately 1,000,000 inhabitants of Baghdad City.

III. EVALUATION & LESSONS LEARNED

- a. Report on any assessments, evaluations or studies undertaken relating to the programme/ project and how they were used during implementation. Has there been a final project evaluation and what are the key findings? Provide reasons if no evaluation of the programme/ project have been done yet?
- Prior to initiating the project, observations and reports from the field indicated that in many places water flows only for a few hours each day, and in other places no water flows at all. In addition, water treatment facilities were operating at about 65 per cent of their full capacity, and the dilapidated and corroded condition of the pipe networks and illegal water connections had resulted in extensive leakages and non-availability of water in many parts of Baghdad City. The project was formulated based on these observations.
 - Once the project was initiated, Phase I ‘Assessment and Diagnosis Phase’ deliverables reflected the full extent and magnitude of shortages of the entire treatment plant (i.e. Lines I, II and III).
 - The rehabilitation works were evaluated through final testing and inspection conducted on 20 November 2008. Minor issues were identified (repainting and alignment) and corrected. The Certificate of Substantial Completion was issued in December 2008.
 - The Certificate of Final Completion is anticipated to be issued upon the conclusion of the defects liability period in December 2009.
- b. Indicate key constraints including delays (if any) during programme/ project implementation.
- Security situation impacted on:
 - Conducting meetings with counterparts, carrying out site visits and verification activities due to limited movement;
 - Reluctance of consultants to engage within a high risk environment;
 - Delay estimated at 2 months.
 - Impact of continuous change of Baghdad Water Authority Director Generals:

- Impact included familiarizing three (3) new Director Generals with the project, objectives, activities...etc.
 - Loss of communications during the change periods and loss of interest by Director Generals waiting for change of position.
 - Delay estimated at 18 months.
 - Increasing UNDP's scope of work to include rehabilitation of portions of Lines II and III of the treatment plant:
 - Delay estimated at 2 months.
- c. Report key lessons learned that would facilitate future programme design and implementation.
- The assessment study and situation analysis should be followed directly by the commencement of the project in order to prevent further deterioration of conditions. This makes the assessment more reliable and reflects more accurately the actual situation on-the-ground.
 - Increase the contingency amount in future contracts to be able to cover additional works that may be revealed only later in the course of implementation.
 - Detailed project scope development should be fully identified at early stages to prevent difficulties such as budget limitations and variation orders.
 - Maintain a consistent and continuous reporting system to counterparts to avoid loss of formal communications.
 - Teleconferencing, VC...etc for communications in the remote management situation is a very helpful set of tools to build partnerships, skills and monitor the situation.
 - Maintain close relations with counterparts to be on top of issues as they emerge.
 - Maintain close contacts with local business associates to forecast and predict forthcoming events and changes.

IV. INDICATOR BASED PERFORMANCE ASSESSMENT

	Performance Indicators	Indicator Baselines	Planned Indicator Targets	Achieved Indicator Targets	Reasons for Variance (if any)	Source of Verification	Comments (if any)
IP Outcome 1: Increase Production of Karama Water Treatment Plant in Baghdad by 10 MDG.							
IP Output 1.1 Production increased by additional 10 MGD of potable water.	Indicator 1.1.1 Procurement of materials and labour for rehabilitation and renovation of Karama W.T.P. Line I of an additional 10 MGD.	Line efficiency at about 40 per cent and inferior treated water quality	Restore line I production capacity. Approximately 1,000,000 inhabitants receiving safe potable water.	Increase line production by 10 million gallons per day (MGD) Approximately 1,000,000 inhabitants receiving safe potable water	Completed rehabilitation of line I and was able to expand work to partially rehabilitate lines II and III	Baghdad Water Authority reports Examination of line gauges Consultant reports Operation and Maintenance logbooks	
IP Outcome 2: Increase reliability and long term operation of Karama Water Treatment Plant..							
IP Output 2.1 The reliability and long-term operation of the whole of Karama Water	Indicator 2.1.1 Procurement of sand filter media for one-year	Dysfunctional filtration media	Sand filters fully functional and treating up to standards	Sand filter media is installed and filters functional		Visual verification Regular water testing Operation and	

Treatment Plant is improved by 40%.	operation.					Maintenance logbooks Lab reports Inspection reports	
IP Output 2.2 The staff of MoB, BWA and Karama WTP has the capacity to manage the potable water system.	Indicator 2.2.1 Management development of the staff of the laboratory, the staff at the plant, the staff of the Baghdad Water Authority and Baghdad Mayoralty.	Existing capacity insufficient for managing the potable water system.	Training conducted for the Baghdad Water Authority, Water Department Personnel and Al-Karama Water Treatment Plant technicians.	120 man days training conducted for the Baghdad Water Authority, Water Department Personnel and Al-Karama Water Treatment Plant technicians.	The Steering Committee decided to omit part of this component of the project scope which allowed for the widening of priority including Line II and Line III in light that other development partners had provided a series of training sessions in this area. To have continued would have been duplication.	Operation and Maintenance logbooks Water quality testing frequency Ministry of Health report	
	Indicator 2.2.2 The	Sub-optimal operation and maintenance	Operation and maintenance training	Operation and maintenance training provided		Training records and reports	

	management and staff of MoB and BWA and management of Karama W.T.P. will be trained on technical and operating skills.	technical staff skills	provided upon completion of the construction	to 5 technicians Operation and maintenance implemented properly and on time All Operation and Maintenance carried out as per manufacturer recommendations		Consultant reports Operation and maintenance log books	
IP Outcome 3: Water Quality monitoring and testing laboratory of the plant capable of conducting daily, weekly and monthly tests according to international testing standard procedures.							
IP Output 3.1 A functioning water laboratory.	Indicator 3.1.1 Supply of materials and equipment for the laboratory's water quality testing equipment and sand filters for one year's operation.	Inadequate functioning of laboratory	Water quality monitoring and testing laboratory of the plant capable of conducting daily, weekly and monthly tests according to international testing standard procedures.		This output was addressed by another development partner and a decision was made by the Steering Committee not to duplicate services. The planned indicator target has been met.		
IP Output 3.2 Staff trained in water testing techniques.	Indicator 3.2.1 Provision of training in Water	Staff did not have capacity in water testing/analysis	Training conducted	120 man days of training completed.		Operation and Maintenance logbooks Water quality	

	Analysis.					testing frequency Ministry of Health report	
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